

# Using Fire to Protect the Park

On October 20, 2010, fire fighters ignited the largest prescribed burn in the history of Wind Cave National Park. This 3,450 acre fire, called the American Elk Prescribed Fire, was located east of State Route 87 and south of Rankin Ridge. Most of the terrain was forested and had not been burned for more than one hundred years. A lot of planning went into making this a successful operation.

One of the main objectives for this historic burn was to restore fire to this part of the park. A forest that has not been burned or logged can become very thick, or dense, with too many trees and not much undergrowth such as shrubs, flowers, or grass. Managers wished to reduce the density of the forest to allow more sunlight to reach the forest floor and encourage the growth of these other plants. Another purpose of the fire was to decrease dead and down fuels to better protect the forest from high intensity wildfires. In addition, we wanted to reduce the encroachment of ponderosa pines onto bordering prairie communities thus protecting the grasslands, a food source for many grazing animals.

Historically, the natural fire pattern at Wind Cave National Park consisted of frequent fires resulting in mostly open-canopy ponderosa pine stands with large diameter trees. With land settlement in the late 1800s, frequent fires ceased. This changed the forest to dense, closed canopy stands with a large number of small trees. As a result, the potential for crown fires increased dramatically. Without occasional prescribed fires, the park's forested areas could be subject to severe wildfires with the potential for killing many trees over large areas.

To prevent these dangerous fires, fire managers try to burn different sections of the park each year. Prescribed fires have been used here since 1972 and are an integral tool for restoring natural diversity to the ecosystems. The American Elk Prescribed Fire was a continuation of this successful program.

Prescribed fire helps maintain the balance between forest and prairie, removes the build-up of dead fuels, reduces the chance of a catastrophic wildfire, rejuvenates native prairie grasses, and, we hope, will limit the infestation of Mountain pine beetles.



Bison on prairie after prescribed fire

Currently, many western states are experiencing outbreaks of these bark beetles resulting in the death of millions of trees. Mountain pine beetles (*Dendroctonus ponderosae*) are native to forests of western North America, including ponderosa pine forests. These outbreaks are cyclic in nature and have happened in the past. The outbreaks occur when forests are very dense and the trees are stressed by drought, old age, over-



The American Elk Prescribed Fire

crowding, poor growing conditions, or root disease.

Mountain pine beetles have a one-year life cycle. In late summer, adults leave the dead, yellow to red needled trees in which they over-wintered. Females seek out large diameter trees where they tunnel under the bark. When the beetle pair mates, they form a vertical tunnel and the female produces about 75 eggs. The larvae over-winter under the bark where they continue to feed throughout the spring. In June and July they transform into pupae and finally exit the trees as adults by mid-August.

During the last few years, a combination of factors has allowed the bark beetle to thrive as never before. First, there have been exceptionally warm winters. The beetle can be controlled naturally if the winter is cold enough, long enough, and early enough. A severe cold snap early fall or late spring can kill beetles that are not physiologically hardened to winter. Sustained temperatures of -20F (-27C) are necessary to kill winter-hardened beetles. Since these conditions have not occurred in recent years, the insect population is growing uncontrollably. In addition, sustained drought over the last few years has stressed many pine trees, making them a fertile ground for beetle infestation.

One way to protect our forests is to maintain stands of trees that are healthy and resilient – well-spaced trees of diverse ages and assorted species. Fire can be used to encourage this. Fire burns in a mosaic across the landscape with different areas experiencing different intensities. Therefore, trees of varied ages, sizes, and species can survive. This diversity helps protect the forest. Pine bark beetles tend to attack older, large diameter trees. When a forest has even aged trees it becomes more susceptible to outbreaks than a diverse forest.

While dramatic and challenging to apply, fire is a highly effective tool that is being used to protect the forests of Wind Cave National Park. As you travel through the park, look for evidence of the American Elk Prescribed Fire and other fires (prescribed and wild) that the park has experienced and investigate the results. These fires help maintain healthy and resilient forests which provide habitats for elk, black-backed woodpeckers, squirrels, and many other animals that make Wind Cave National Park their home.



Dead ponderosa pines usually turn red

## What's Inside

Cave Tour Schedule.....7  
Hiking Information.....3  
Junior Ranger.....6  
Park Map.....3  
Planning Your Visit.....2  
Safety Information.....2  
Wind Cave Resource Mgmt.....4-5

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**Welcome from the Superintendent**



Welcome to Wind Cave National Park. This national park is one of the oldest in the country. Established in 1903, it was the eighth national park created and the first set aside to protect a cave.

While Wind Cave is the major attraction with its unique boxwork and significant underground cave passageways, the surface resources, including both natural and cultural resources, are also worth the stop. The buildings around the visitor center date back to the 1930s Civilian Conservation Corps. The wildlife such as bison, elk, mule deer, pronghorn antelope, prairie dogs, and black-foot ferrets are also exciting to view.

Today, visitors from around the world come to see these two parks in one. Our hope is that you have a safe and enjoyable visit to Wind Cave National Park, take plenty of pictures, participate in our programs, and leave nothing behind but footprints.

Travel Safe,

Vidal Davila  
Superintendent



# Simple Rules for Safety and to Protect Park Resources

## Protecting the Park

Park resources are for everyone to enjoy. ***Do not disturb or remove plants, wildlife, antlers, bones, rocks, or any other natural or cultural feature.*** They are protected by federal law. These resources are all part of the park's ecosystem and are important to the park's history and to the survival of other animals and plants. Please leave these objects undisturbed so the next visitor can enjoy them.



## Weapons

As of February 22, 2010, a new federal law allows people who can legally possess firearms under federal, South Dakota, and local laws to possess firearms while visiting Wind Cave National Park. ***However, hunting and/or the use of firearms is still prohibited.*** It is the visitor's responsibility to under-

stand and comply with all applicable state, local, and federal firearms laws. ***Federal law prohibits firearms in certain facilities in this park;*** these places are posted with signs at public entrances. If you have questions, please contact the park at 605-745-4600.

## Wildlife

***Animals in the park are wild and unpredictable. Do not approach or attempt to feed them.*** Feeding animals causes them to become dependent on handouts and they may fail to survive the winter. Animals that are fed are attracted to highways where they can be struck by vehicles.

Be aware that rattlesnakes are sometimes found in prairie dog towns and other areas of the park. Bison also frequent prairie dog towns. They can run 35 miles per hour and may weigh a ton! Stay a

safe distance from all wildlife - at least 100 yards from bison and elk.

## Pets

To protect your pet and park wildlife remember: ***pets are prohibited in the backcountry and on most hiking trails.*** Pets are permitted on the Elk Mountain Nature Trail at the campground and on the Prairie Vista Nature Trail near the picnic area. Be sure to clean up after your pet. Pets may not be left unattended and must be on a leash at all times. Be aware that ticks are common in high grass. They may affect your pet and you.

***Do not leave your pets in your vehicle while visiting the cave or for any length of time.*** The temperatures inside a vehicle can become extreme, putting your pet in grave danger. Kennel space is available in Hot Springs or Custer. Pets may not be left unattended outside of a vehicle, even if they are leashed.

## Traveling in the Park

***All vehicles (including bicycles) must remain on roadways*** that are open to the public. Off-road driving or bicycle riding is prohibited.

## Slow down and enjoy the view!

When driving park roads, ***obey all speed limits.*** They are strictly enforced to protect you and the wildlife. In the last twenty years over eighty bison have been struck and killed by motor vehicles in the park. You can help protect the wildlife; obey all posted speed limits and watch out for animals on the road - they may appear suddenly. Keep your seatbelt fastened.



Drive safely, watch for animals on the road

# Planning Your Visit

## Visitor Center

The Wind Cave Visitor Center is a great place to start your park visit. The visitor center is open from 8:00 a.m. to 4:30 p.m. daily, with extended hours during the summer. The visitor center is closed on Thanksgiving, Christmas and New Year's Day. All cave tours begin at the visitor center and are offered daily throughout the year when the visitor center is open. For more information see page 7.

Exhibits, maps, book sales, backcountry permits, information about cave tours and ranger programs, lost-and-found services, and Federal Recreational Lands Passes are available here.



## Ranger Programs

When visiting the park, plan to attend a ranger-led program. While cave tours are offered all year long, additional programs are presented in the summer. For more information about ranger programs and cave tours see page 6.



## Campground

The Elk Mountain Campground is located one mile north of the visitor center. Parts of the campground may be closed temporarily throughout the summer due to several construction projects. We apologize for any inconvenience this may cause. Occupancy of campsites is on a first-come, first-served basis; generally the campground does not fill. Each site accommodates up to eight people and two vehicles.

Two sites are available for campers with disabilities.

The fee for camping is \$12 per night, per site. In the off-season when facilities are limited, the fee is \$6 per night. Holders of the Federal Recreational Lands Senior or Access pass pay half price. Group camping is available by reservation. For group reservations call the park at 605-745-4600.

The campground has restrooms with cold water and flush toilets but no showers, electrical hook-ups, or dump stations. Firewood is available for campers. During the summer months, park rangers present campfire programs at the amphitheater.

## Backcountry Camping

Wind Cave National Park's backcountry offers visitors an excellent opportunity to experience and enjoy the abundant resources of the park. Backcountry camping is permitted in the northwestern part of the park. Several habitats and a variety of plants and animals can be found in this area.

***Backcountry campers must have a permit.*** Permits are free and can be obtained at the visitor center. For your safety and for the protection of park resources, follow all regulations during your stay. Leave no trace of your visit by packing out what you pack in. ***Pets are not permitted in the backcountry.***

## Trash and Recycling

Trash receptacles are available at the visitor center, the picnic area, and the Elk Mountain Campground. Recycling facilities are also available at these areas. The park recycles glass, aluminum cans, steel cans, and plastic containers with PETE 1 or HDPE 2 markings. Please rinse recyclables before placing them in containers.

## Hiking Safely

When hiking park trails (see next page), ***make sure to carry plenty of water*** as daytime temperatures in the summer can exceed 100°F (38°C). Water is not readily available along the trails. Any water found in the backcountry should be treated or boiled before drinking.

Flies, mosquitoes, and wood ticks can be found in the wetter areas of the park. Be watchful for prairie rattlesnakes in prairie dog towns and near cliffs and rocky areas. Rattlesnakes will not usually strike unless provoked.



## Bicycling

Bicycling is limited to established park roads that are open to the public. ***Bicycling off road, on trails, or in the backcountry is prohibited.*** When bicycling, be aware that animals roam freely through the park. Keep a safe distance from bison and all wild animals. Highway U.S. 385 has wider shoulders for bicyclists than S.D. 87 where the road is winding and narrow. Bicyclists should take precautions when on this road. Traveling the park's back roads, NPS 5 and 6, provides a great opportunity to see the prairie area of the park.

## Horseback Riding

Horseback riding is a wonderful way to experience the park's backcountry. ***All horse and pack animal use requires a free permit*** which may be obtained at the visitor center. Almost all of the park is

open to riding; however, ***riding is prohibited directly on any hiking trail, near water sources, on roadways, and in the campground and picnic areas.***

## Picnicking

The park's picnic area is located ¼ mile north of the visitor center and is open year-round. The picnic area contains tables and fire grates. Drinking water is available in the summer months.

## Restrooms

Restrooms are available year-round at the visitor center, picnic area, and the Elk Mountain Campground.

## Weather

Summer in the southern Black Hills brings warm daytime temperatures with cool evenings. Thunderstorms are common in June and July and occasionally in August. These thunderstorms can be dangerous with large hail and severe lightning.

Slow-moving storms can dump large amounts of rain over a small area. The steep canyons, rock cliffs, and small creeks of the Black Hills are prone to flash flooding. Be cautious when camping near a creek bed even if it is dry. Move uphill if flooding starts.

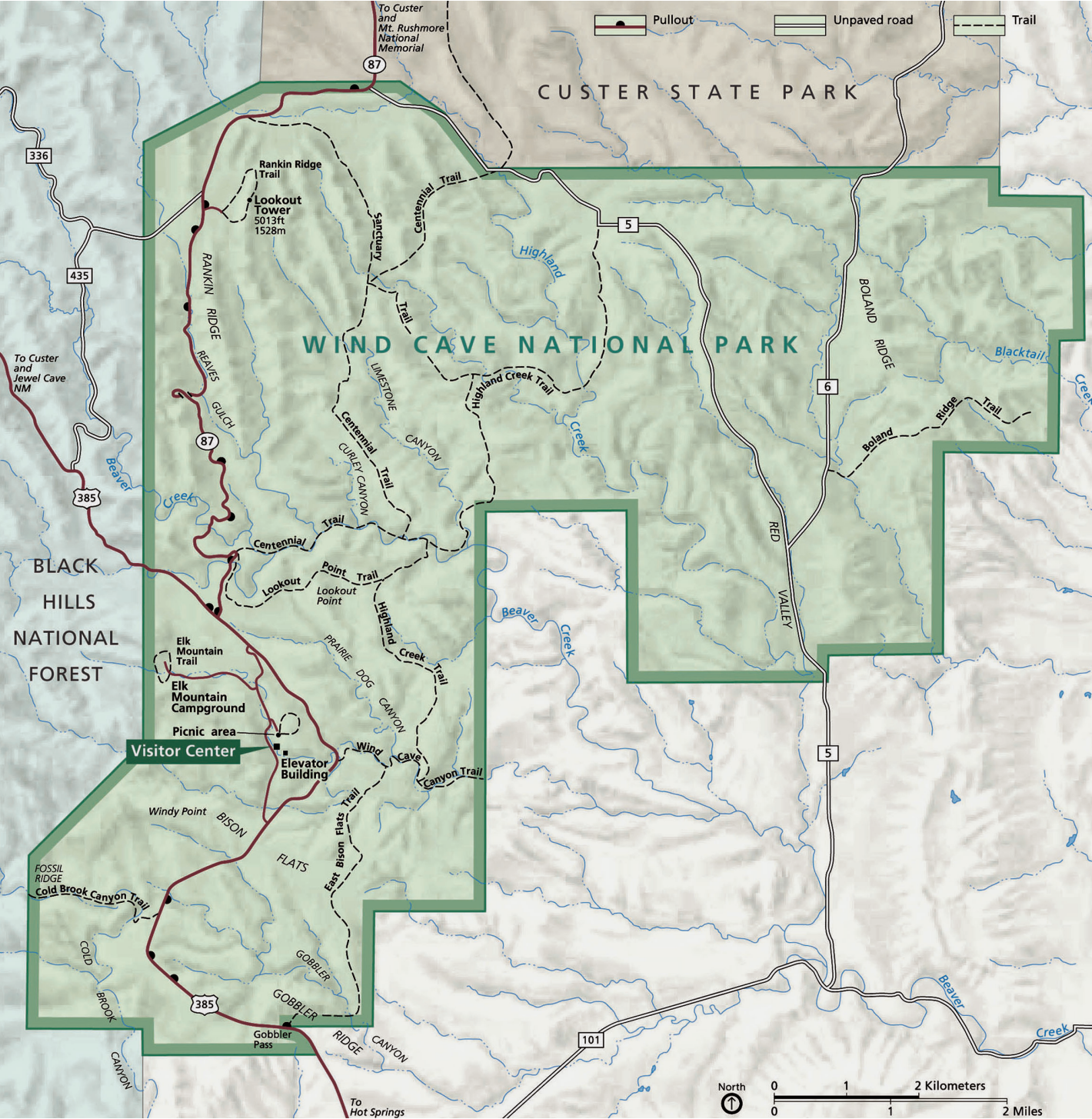
## Area Services

The park has limited food and beverage vending services in the visitor center. There are no lodging, gasoline, grocery, or restaurant services in the park. These are available in the nearby towns of Hot Springs (15 minutes south) and Custer (25 minutes north). For information regarding services in Hot Springs, call 800-325-6991. For Custer, call 800-992-9818.

Lodging, gasoline, and some grocery services are located in Custer State Park bordering Wind Cave National Park to the north.



# Hiking



## HIKING IN THE PARK

Wind Cave National Park includes 28,295 acres of prairie grasslands and ponderosa pine forest. The park is a fascinating combination of ecosystems where eastern habitats meet western ones. They support a diverse assortment of life. Hiking any of the 30 miles of trails can help visitors better understand the park. You may even want to leave the trails and travel cross-country along the ridges, through the canyons, or across the rolling prairie. A topographic map is recommended and can be purchased at the visitor center.

## CENTENNIAL TRAIL

An excellent example of the diversity of the park can be seen by hiking Wind Cave’s six-mile section of the Centennial Trail. This trail crosses the prairie, climbs the forested ridges, and explores the wetter, riparian habitat of Beaver Creek. The 111-mile Centennial Trail meanders from Wind Cave National Park north through the Black Hills.

## NATURE TRAILS

There are three nature trails in the park. The Rankin Ridge Nature Trail leads to the highest point in the park where the views are spectacular. The Elk Mountain Nature Trail explores an ecotone, or meeting zone, where the grassland and forest converge. The Prairie Vista Nature Trail starts at the visitor center and explores the prairie grasslands. Informational signs are available on the trails or booklets are available for purchase at the trailheads. Each trail is about one mile in length.

Hiking Trails			
	One-way Length	Difficulty	Description
Cold Brook Canyon Trail	1.4 miles (2.3 km)	Moderately Strenuous	The trail begins south of the visitor center on the west side of U.S. Highway 385. This trail travels through a forested area, traverses a small prairie dog town, and winds through Cold Brook Canyon to the park boundary fence. The open prairie is a good place to see raptors such as prairie falcons.
Wind Cave Canyon Trail	1.8 miles (2.9 km)	Easy	This former road follows Wind Cave Canyon to the park boundary fence. Wind Cave Canyon is one of the best places for bird watching. Limestone cliffs provide good nesting areas for cliff swallows, canyon wrens, and great horned owls. Standing dead trees serve as homes for red-headed and Lewis’s woodpeckers.
East Bison Flats Trail	3.7 miles (6 km)	Moderately Strenuous	Hike one-half mile down the Wind Cave Canyon Trail to pick up the East Bison Flats Trail. This trail leads hikers across the rolling hills of the prairie. From this trail you may see panoramic views of Wind Cave National Park, Buffalo Gap, and the Black Hills.
Lookout Point Trail	2.2 miles (3.5 km)	Moderately Strenuous	This trail follows the rolling hills of the prairie, traverses Lookout Point, and ends at Beaver Creek. Take a side trip up Lookout Point to see the results of the 2010 American Elk Prescribed Fire. This trail can also be combined with part of the Highland Creek Trail, and the Centennial Trail, to create a 4.5-mile loop that begins and ends at the Centennial Trailhead.
Sanctuary Trail	3.6 miles (5.8 km)	Moderately Strenuous	The trail begins about one mile north of the Rankin Ridge fire tower road. This trail follows the rolling hills of the prairie, crosses a large prairie dog town, and ends at the Highland Creek Trail. View the Rankin Ridge fire tower at the intersection of the Centennial Trail. This trail provided a fire break for the 2000 wild-fire of 1,135 acres.
Centennial Trail	6 miles (9.7 km)	Moderately Strenuous	The southern access to the trail is on the east side of S.D. Highway 87. The northern access is on NPS 5, 1.4 miles east of its junction with S.D. Highway 87. This trail is part of a 111-mile trail through the Black Hills. The trail leads hikers across prairies, through forested areas, and along Beaver Creek. The trail is marked with posts and trees bearing the Centennial Trail logo. The trail travels through the 2010 American Elk Prescribed Fire area.
Highland Creek Trail	8.6 miles (13.8 km)	Strenuous	The southern trailhead is along the Wind Cave Canyon Trail one mile east of U.S. Highway 385. The northern trailhead is on NPS 5, 2.8 miles east of S.D. Highway 87. This trail is the longest and the most diverse in the park. The trail traverses mixed-grass prairies, ponderosa pine forests, and riparian habitats of Highland Creek, Beaver Creek, and Wind Cave Canyon.
Boland Ridge Trail	2.6 miles (4.2 km)	Strenuous	The trail begins one mile north of the junction of NPS 5 and NPS 6. This trail climbs to panoramic views of Wind Cave National Park, the Black Hills, Red Valley, and Battle Mountain. Elk are often seen from this trail.



# Protecting Park Resources

## White-Nose Syndrome - A National Tragedy

One of the most serious wildlife issues today is a disease decimating bat populations in the eastern United States. Called white-nose syndrome (WNS), this disease was first discovered during the winter of 2006-2007 in caves near Albany, New York. It has since spread to caves in 15 states and Canadian provinces. More than one million bats have died and, in some caves, nearly 100% of the hibernating bats have died.

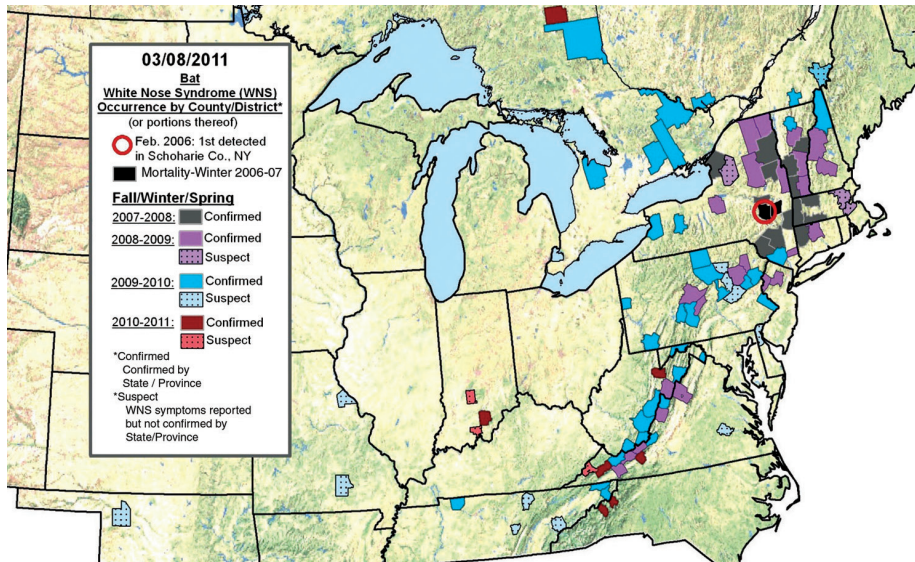
The disease is predicted to have a devastating impact on little brown bats, one of our most common species and threatens several already endangered species, such as Indiana bats and the big-eared bat. It is shaping up to be the largest mass mortality event in North American wildlife in recorded history.

The cause of WNS remains elusive but has been linked to a cold-loving fungus that forms a white covering on bats' faces, wings, and body. The fungus strikes bats when they are most vulnerable – during hibernation when their immune system is dormant. It causes bats to wake from hibernation using energy reserves long before spring comes. This results in death by starvation or freezing.

Although white-nose syndrome was named after the obvious symptom of white noses on affected bats, their wings may be the most vulnerable point of infection. Wing membranes represent about 85% of a bat's total surface area and help regulate body temperature, blood pressure, water balance, and gas exchange – not to mention the ability to fly and to feed.

Wind Cave National Park hosts eleven species of bats, eight of which are cave-dwelling. The few bats seen in Wind Cave are generally found along the Natural Entrance Tour Route. They enter by squeezing through the door at the cave entrance since they have difficulty going through the small natural entrance with its strong airflow. At this point white-nose syndrome has not affected the park's bat population. However, cave managers are keeping a watchful eye on the situation.

Even though WNS fungus does not affect humans, it may be possible for us to spread the disease from cave to cave which could, in turn, affect



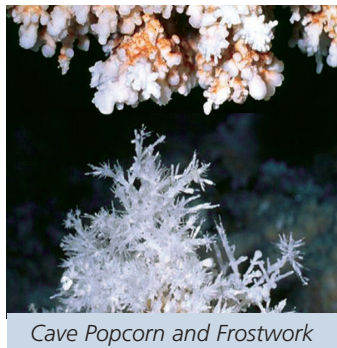
Current Location of White-nose Syndrome  
Map by: Cat Butchkoski, PA Game Commission

## Protecting and Enjoying the Underground

Visitors have been enjoying the mazes and marvels of Wind Cave since the early 1880s. Even in those early years people wanted to see the spectacular beauty of the cave by electric lights. In 1931 that happened; the park installed the first cave lighting system along the major tour routes.

Unfortunately, all electrical systems deteriorate and eventually need to be replaced. Last year the park's maintenance team completed a three-year project of replacing the outdated incandescent lighting system that was installed in 1979.

Each time a new light system is installed, managers have to consider how to illuminate the cave while protecting it. This new light system has several improvements. It primarily uses LED (light emitting diode) and compact fluorescent bulbs, cutting the park's use of power considerably. The lights also protect fragile cave formations because



Cave Popcorn and Frostwork

these bulbs produce less heat and light energy.

Heat can cause water to evaporate and water plays an important part in the development of cave formations. By reducing the heat, water remains in the cave so crystals can grow. The lights also help limit algae growth in the cave due to the reduced heat and light energy.

At completion, nearly 1,100 LED fixtures were installed. This increased the number of fixtures by 500 lights but decreased our energy consumption by nearly 78%. The new system, designed and installed by park staff, uses light to create visually captivating scenes and highlights the features that the cave is world famous for – mainly boxwork and complexity.

In addition to improving the lights along the current routes, we were also able to pave and relight the Blue Grotto Tour Route, a portion of the Candlelight Tour Route. This tour is available during the winter season.

This new light system provides the opportunity for visitors to view the spectacular beauty of the cave in a safe and comfortable environment while protecting its delicate formations.



Bats with White-Nose Syndrome

bats. Wind Cave National Park has undertaken the following to prevent the spread of WNS fungus by humans:

- All backcountry caves in the park are closed. They may be entered by permit for management or research purposes only.
- All cavers entering Wind Cave, including visitors taking the Wild Cave Tour, must have clean clothing and caving gear. If they have been in a cave within an affected state, they cannot use that gear unless it is cleaned using accepted decontamination procedures.
- The park will conduct a survey to determine the use of caves within the park by bats. Resource managers hope to help establish a year-round record of bat usage of the park.
- The park is providing information about WNS to park visitors through brochures and by adding information to the park's website.

The cooperative response to this unprecedented wildlife disease has been tremendous as scientists work together to protect all bat species. The impact of losing our bat populations would be immense.

Bats are the primary predators of night-flying insects and play a vital role in maintaining a balance in nature. Different bat species hunt at different heights, preying on different kinds of insects. Larger bats eat various moths and worms that are harmful to agriculture and forestry. Smaller ones eat mosquitoes and other double-winged insects. Some species of bats can eat 600 mosquitoes in an hour! The Forest Service estimates that the die-off from white-nose syndrome means that at least 2.4 million pounds of bugs will go uneaten. This could result in a financial burden to farmers, possibly requiring more insecticide, raising environmental worries, and pushing up grocery prices.

Many plants, including tropical fruits, are pollinated by bats. Bats that eat fruit or flowers disperse seeds and pollinate flowers of more than 500 species of trees, cactus, flowers, and shrubs. If it were not for bats, the harvest of tropical fruits such as bananas, cashews, avocados, and pineapples would decrease. Bats are an important part of the world's ecosystem and need our awareness and protection.

For additional information regarding bats and white-nose syndrome visit:  
The US Fish and Wildlife Service at [www.fws.gov/WhiteNoseSyndrome/](http://www.fws.gov/WhiteNoseSyndrome/)  
The National Speleological Society's WNS page at [www.caves.org/WNS/](http://www.caves.org/WNS/)  
Bat Conservation International at [www.batcon.org/](http://www.batcon.org/)  
The South Dakota Bat Working Group at [www.sdbwg.org/](http://www.sdbwg.org/)



Healthy Bat in Wind Cave



Cave Boxwork



# Thirty Years and Still Growing

Throughout their existence, black-footed ferrets have been elusive. None of the early explorers, mountain men, or pioneers mentioned them. Occasionally they were listed in fur company records but they were not officially recognized by scientists until 1851 when naturalists John James Audubon and John Backman described them. And they based their observation on a single specimen found near the lower waters of the Platte River.

Ferrets were so elusive that shortly after Audubon’s description, controversy brewed over their true existence. For nearly 25 years no other specimens had been obtained or observed and, to add fuel to the controversy, the original specimen had disappeared. Then, in 1874, Dr. Elliot Coues took on the challenge of assisting Audubon in his quest to find the animal and issued a request through the popular magazine *American Sportsmen* for specimens. He was soon rewarded. With new observations he was able to augment Audubon’s descriptions. Black-footed ferrets did indeed exist. But their existence has been shaky at best.

Black-footed ferrets are dependent upon prairie dogs for ninety percent of their diet and prairie dog burrows provide essential shelter for ferret families. A family of ferrets can eat as many as 240 prairie dogs in a year. Ferrets hunt at night, are secretive, and hard to see. Since prairie dogs were considered pests and were being eliminated throughout the West, they and, in turn, ferrets became more and more scarce.



By 1960 only one colony of ferrets was known to exist and, in 1974, for unknown reasons, that one disappeared. With its disappearance, biologists feared the species was extinct, or existed in such small populations that natural disaster or disease might eventually eliminate them.

Lucky for black-footed ferrets, a farm dog named Shep found a ferret near Meeteetse, Wyoming in 1981 and brought him home. The ranchers couldn’t identify the animal so they called the local taxidermist who identified it as the incredibly rare and sought after black-footed ferret. He contacted wildlife professionals and the black-footed ferret recovery program was born.

This event led to the dramatic discovery of a small group of about 130



This Black-footed ferret was brought to the park in 2010

ferrets and offered a ray of hope for the species. Tragically, outbreaks of canine distemper, and probably sylvatic plague, nearly killed the population. Between 1985 and 1987 the last known 18 ferrets were taken into captivity. At that time, these were probably the rarest mammals on earth. Since then, incredible efforts have been made in an attempt to save this important species. Hundreds have been reintroduced in the wild and numerous states are now home to this fascinating mammal.

However, wild ferret populations still struggle. As of December 2009 there were only four reintroduction sites considered self-sustaining – Cheyenne River and Conata Basin in South Dakota, Shirley Basin in Wyoming, and Aubrey Valley in Arizona.

Wind Cave National Park has played an important part in reestablishing wildlife to the Great Plains. In 1913 fourteen bison came from the New York City Zoo to start the Wind Cave herd. In 1914 elk and pronghorn were returned. The tradition continued when black-footed ferrets were reintroduced to the park’s prairie dog towns in 2007, with additional animals added to the population in 2010.

Just like bison, elk, and pronghorn, ferrets play an essential role in the prairie environment. Their presence helps restore this valuable ecosystem and provides an opportunity for visitors from around the world to see a rare and elusive animal on the prairies of Wind Cave National Park.



## Managing the Elk

Seeing wild animals in their natural environment is one of the thrills of visiting a national park. Protecting these animals and their habitat is a primary goal for Wind Cave National Park. One of the best ways to protect both the animals and their habitat is to define the “carrying capacity” of the park. This is done by determining how many animals can live in the park without damaging the ecosystem – in essence making sure the animals don’t eat themselves out of house and home.

How many Rocky Mountain elk should utilize the park and the methods used to maintain that population is one of the park’s major questions. That number was recently defined by the park’s newly approved Elk Management Plan. The scientists involved in writing this document concluded that, to maintain a healthy grazing ecosystem, a range of 232–475 elk could share the park with other grazers such as bison, pronghorn, deer, and prairie dogs. Today, research indicates that as many as 850-900 elk use the park in the fall and winter. This is nearly twice the number of elk that the park can support on a long term basis. To determine how to reduce that number, biologists studied the movement of elk using the park.

From 2005-2009, 202 different elk were captured and fitted with GPS (Global Positioning System) collars. The collars gathered information about the elk’s location every 7 hours with some collars recording locations every 15 minutes. This data helped biologists determine when the animal traveled to features such as water or different types of vegetation and even when they left the park.

Biologists discovered that some of these elk only spent brief periods of time within park boundaries. Many moved in and out several times a year.

The data showed that this seasonal movement could be controlled by raising or lowering sections of the boundary fence at opportune times. To do this the park’s maintenance team modified sections of fence on our western boundary to create “elk gates.” These gates could be lowered when many elk tend to leave the park and raised before they are likely to return. By restricting their movement back into the park, the optimum carrying capacity can be maintained while recreational opportunities for elk hunters outside park boundaries can be provided.

Winter use of the park by large numbers of elk can burden the ecosystems that support many other animals. Elk tend to browse on small hardwoods. Botanists had been noticing that many hardwood areas were struggling to survive because of the browsing habits of elk. Keeping them away from developing aspen, ash, willow, and chokecherry saplings provides an opportunity for these plants to mature and provides a food source for birds and other park wildlife.

Through research, park managers build an understanding of the balance between the needs of the elk and the needs of the ecosystem. By managing the carrying capacity of elk and other grazing animals we can protect the park’s vegetative communities making this a vibrant ecosystem that supports a diverse array of plants and animals. This, in turn, allows all of us to enjoy seeing majestic animals in their natural, healthy habitat.



Bull Elk in the Spring



# Program Information

## Become a Junior Ranger!

The Junior Ranger Program is an exciting opportunity for children and their families to learn about the park. Becoming a Junior Ranger helps youngsters understand the park's ecosystems, the cave, and the animals. It also helps them learn how they can help protect all parts of our environment. Free Junior Ranger booklets are available at the bookstore. There are activities for children up to age 12.

The Prairie Hike, offered during the summer season, provides a great opportunity for Junior Rangers to

explore the park with a ranger. These hikes are presented at 9:00 a.m. everyday. Topics vary. The hikes are geared for families.

Thanks to the generous support of **Kodak**, park rangers will be taking photographs of the accomplishments of our Junior Rangers. These youngsters will then be able to share their pictures and adventures with families and friends.

Children of all ages can become Junior Rangers at home by logging on to [www.nps.gov/webrangers](http://www.nps.gov/webrangers).

## Educational Opportunities

Wind Cave offers a variety of wonderful opportunities to learn about the natural resources of the park. Ranger guided hikes, cave tours, or campfire programs provide interesting information about many different aspects of the park. Exploring the visitor center, participating in the Junior Ranger Program, or hiking in the park are also great ways to discover what is special about this national park.

Teachers wanting an educational opportunity for their students can participate in regular cave tours or participate in one of the park's environmental education programs. The *Connections* program explores the idea that all parts of our

environment are connected and allows students to explore these connections with a ranger. The other program, *Water in the Environment*, provides the opportunity for students to investigate water as it travels from the surface, through the cave, to groundwater. These ranger led programs are available in late April and early May.

The park also provides the *Water in the Environment* teaching unit and trunk for teachers who cannot visit the park. This program is available from the park or on the website at [www.nps.gov/wica/](http://www.nps.gov/wica/). The environmental education programs and the trunk are free. For more information call the park at 605-745-4600.

## Cave Tours

### Cave Tour Information

All cave tours are ranger-guided and leave from the visitor center. The cave temperature is 53°F(11°C) year round. A jacket or sweater is recommended. Shoes are required. Sandals are not recommended. Any clothing, foot-wear, or gear worn in caves from states where white-nose syndrome is found are not permitted on any cave tour.

Tickets are sold at the visitor center. ***Tickets must be purchased at least five minutes before tour times.***



Cave Boxwork

### Natural Entrance Tour 1½ hours, ½ mile

This tour includes a visit to the only known natural entrance of Wind Cave giving visitors the opportunity to see how the cave got its name. Participants enter the cave through a man-made entrance and journey through the middle level of the

cave. Wind Cave's famous boxwork is abundant throughout this trip. Popcorn and frostwork can also be seen along the trail. Most of the 300 stairs along this route are down. This tour is moderately strenuous and exits the cave by elevator.

### Garden of Eden Tour 1 hour, ¼ mile

This tour is the least strenuous with only 150 stairs. It is a wonderful sample of Wind Cave. Small amounts of all of the beautiful cave formations – boxwork, popcorn, and flowstone – are seen along the trail. The tour is for people with limited time or abilities. This tour enters and exits the cave by elevator.

### Fairgrounds Tour 1½ hours, ½ mile

This tour explores both the upper and middle levels of Wind Cave. Boxwork is abundant along the trail in the middle level of the cave. In the upper level, the trail winds through large rooms and into areas where popcorn and frostwork can be seen. This is the most strenuous walking tour. The tour enters and exits the cave by elevator. There are 450 stairs along the route with one flight of 90 steps up.

## Walks and Talks



### Prairie Hike

Take a hike with a ranger! Explore the park's varied habitats with this two-hour summer activity. The daily hike begins at 9:00 a.m. at the visitor center before the group drives to a nearby trailhead. Bring drinking water and wear hiking boots or sturdy shoes. Check at the visitor center for details.

### Evening Hike

Explore the happenings on a prairie dog town at night and possibly see an endangered species - the black-footed ferret! These evening hikes begin at the Elk Mountain Campground Amphitheater before driving to a nearby site. Bring a flashlight and wear hiking boots. Check at the visitor center for details.

### Campfire Program

Become better acquainted with park resources by attending an evening campfire program. These talks are presented during the summer at the Elk Mountain Campground Amphitheater. Topics may include wildlife, plants, geology, cave exploration, park management, or history. The programs last about 45 minutes.

### Discovery Activity

Daily, during the summer, ranger talks or demonstrations take place at the visitor center. These programs explain some facet of the park. Topics may include local wildlife, plants, geology, area history, or cave surveying. Check at the visitor center for meeting place and topic.



Evening Campfire Program

### Wild Cave Tour 4 hours, ½ mile

Explore the cave away from the developed trails. On this tour visitors will be introduced to the basics of safe caving.

Wear old clothes and gloves, as much of the trip includes crawling. Long pants, long sleeved shirts, and sturdy, lace-up boots or shoes with non-slip soles are required. No sandal of any kind is permitted on this tour. The park provides hard hats, lights, and kneepads.

Please do not bring jewelry, watches, or other valuables on the tour. Clothing worn on the Jewel Cave Wild Cave Tour is not permitted in Wind Cave since this clothing could be covered with manganese, which could stain the cave. Clothing and gear used in areas with potential white-nose syndrome contamination are not permitted in the cave.

This tour is limited to 10 people and the minimum age is 16. We require a signed parental consent form for participants 16 and 17 years old.

### Reservations are required.

Reservations are accepted beginning one month before the tour. Call the park at 605-745-4600 for reservations or more information.

### Candlelight Tour 2 hours, 1 mile

Experience the cave by candlelight. This tour takes place in a less developed, unlighted part of the cave. Each participant will carry a candle bucket. Shoes with non-slip soles are required. No sandals of any kind are permitted. This tour is limited to 10 people and the minimum age is 8. This strenuous tour covers one mile of rugged trail. ***Reservations are strongly recommended.*** Reservations are accepted beginning one month before the tour. Call the park at 605-745-4600 for reservations or more information.

### Tours For Visitors With Special Needs

The visitor center and the cave are accessible to people with limited mobility. Please call to make special arrangements or ask at the information desk for a special tour. Limited areas of the cave are accessible to wheelchairs. The fee for the tour is \$5.00 for adults and half price for Senior or Access pass holders.



Cave Frostwork and Popcorn



# Ranger Programs

## Cave Tour Fees

Tickets must be purchased at least five minutes before tour time

	Garden of Eden Cave Tour	Natural Entrance Cave Tour	Fairgrounds Cave Tour	Candlelight Cave Tour	Wild Cave Tour
<b>Adult</b> 17 & Older	<b>\$7.00</b>	<b>\$9.00</b>	<b>\$9.00</b>	<b>\$9.00</b>	<b>\$23.00</b>
<b>Youth</b> age 6 - 16	<b>\$3.50</b>	<b>\$4.50</b>	<b>\$4.50</b>	<b>*\$4.50</b>	<b>**Not Permitted</b>
<b>Infants and Toddlers</b> age 0 - 5	<b>Free</b>	<b>Free</b>	<b>Free</b>	<b>Not Permitted</b>	<b>Not Permitted</b>
<b>Senior/ Access Pass</b> cardholders only	<b>\$3.50</b>	<b>\$4.50</b>	<b>\$4.50</b>	<b>\$4.50</b>	<b>\$11.50</b>

\* Minimum age for Candlelight Tour is 8  
\*\* Minimum age for Wild Cave Tour is 16. The fee is \$23.00



## Cave Tour Safety and Information



All tours are ranger-guided and leave from the visitor center. Tickets are sold on a first-come, first-served basis except for the Candlelight and Wild Cave tours (see Reservations below). During peak summer visitation, long waits for tours may be encountered. To avoid waits, the best time to visit the cave is during the early hours of the day. During the summer, weekends are good times to visit; Tuesdays and Wednesdays are the busiest days. Reservations for school and organized groups are available (see Reservations.)

Wind Cave is 53°F (11°C) throughout the year so a sweater or jacket are recommended. Shoes are required on all tours. Cave trails are dimly lighted and trail surfaces may be uneven, wet, and slippery. Do not wear sandals. Ceilings along the tour route are low, requiring some bending.

There are no restrooms in the cave. No eating, drinking, smoking, chewing tobacco or gum is allowed in the cave. For the protection of the cave, do not touch or remove rocks or formations and do not step off the trail.

Cave tours are moderately strenuous. Persons with claustrophobia, heart or respiratory conditions, or other physical limitations should reconsider. A tour is available, by request, for visitors with special needs. Call 605-745-4600 or ask at the information desk.

Photography is permitted, but no tripods. Pets are not allowed in the cave. Do not leave your pets in your vehicle while visiting the cave. See Page 2 for more information about pets in the park.

Any clothing, foot-wear, or gear worn in caves from states where white-nose syndrome is found are not permitted on any cave tour.

### Reservations

Tickets for most cave tours are sold on a first-come, first-served basis; however, reservations are accepted for schools or large groups. Reservations are strongly recommended for the more strenuous Candlelight Tour and required for the Wild Cave (spelunking) Tour. Reservations are accepted beginning one month before the tour and must be made by phone. Call 605-745-4600 for information or reservations.

## Program Schedule



### April 9 – April 23, 2011

Visitor Center: 8:00 a.m. – 5:00 p.m.  
Garden of Eden Tour: 9:30, 11:30, 1:30, and 3:30

### April 24 – May 27, 2011

Visitor Center: 8:00 a.m. – 6:00 p.m.  
Cave Tour: 9:00, 10:30, 11:30, 1:30, 2:30, and 4:30

### May 28 – May 30, 2011, Memorial Day Weekend

Visitor Center: 8:00 a.m. – 6:00 p.m.  
Garden of Eden Tour: 10:00, 12:00, and 2:00  
Fairgrounds Tour: 11:00, 1:00, and 3:00  
Natural Entrance Tour: 8:40, 9:20, 10:30, 11:30, 12:30, 1:30, 2:30, 3:30, 4:30, and 5:00  
Campfire Program: 8:30 p.m., Saturday and Sunday

### May 31 – June 10, 2011

Visitor Center: 8:00 a.m. – 6:00 p.m.  
Garden of Eden Tour: 12:30, 1:30, 2:30, and 3:30  
Natural Entrance Tour: 9:00, 10:00, 11:00, 1:00, 2:00, 4:00, and 5:00

### June 11 – August 13, 2011

Visitor Center: 8:00 a.m. – 7:00 p.m.  
Garden of Eden Tour: 10:40, 12:40, and 2:40  
Natural Entrance Tour: 8:40, 9:20, 10:00, 11:00, 12:00, 1:00, 2:00, 3:00, 4:00, 5:00, 5:30, and 6:00  
Fairgrounds Tour: 9:40, 10:20, 11:40, 12:20, 1:40, 2:20, 3:40, and 4:20  
Candlelight Tour: 10:30 a.m. and 1:30 p.m.  
Wild Cave Tour: 1:00 p.m.  
Ranger-led Hike: 9:00 a.m.  
Campfire Program: 9:00 p.m.

### August 14 – September 5, 2011

Visitor Center: 8:00 a.m. – 6:00 p.m.  
Garden of Eden Tour: 10:30, 1:40 and 3:40  
Natural Entrance Tour: 9:00, 10:00, 11:00, 12:00, 1:00, 2:00, 3:00, 4:00, and 5:00  
Fairgrounds Tour: 9:30, 11:20, 1:20, and 3:20  
Candlelight Tour: 1:30 p.m.  
Wild Cave Tour: 1:00 p.m. **Weekends Only** August 14, 20, 21, 27, 28, and September 3 and 4  
Campfire Program: 8:00 p.m.

### September 6 – September 24, 2011

Visitor Center: 8:00 a.m. – 6:00 p.m.  
Natural Entrance Tour: 9:00, 10:30, 11:30, 1:30, 2:30, and 4:30  
Evening Program: 7:00 p.m. Tuesday, Thursday, and Saturday

### September 25 – October 15, 2011

Visitor Center: 8:00 a.m. – 5:00 p.m.  
Natural Entrance Tour: 9:30, 11:30, 1:30, and 3:30

### October 16, 2011 – Early April, 2012

Visitor Center: 8:00 a.m. – 4:30 p.m. daily except Thanksgiving, Christmas, and New Year's Day  
Garden of Eden Cave Tour: 10:00, 1:00, and 3:00

**Tour schedules are subject to change. Please call 605-745-4600 to confirm tour times. Programs are subject to cancellation during severe weather.**

*For the protection of the cave, do not touch or remove rocks or formations and do not step off the trail.*

**IN CASE OF AN EMERGENCY  
Dial 911  
or contact any park ranger or  
call the park's visitor center  
at 605-745-4600.**



